



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,397	06/06/2002	Zsolt John Laczik	9267-17	2972

23973 7590 09/08/2004

DRINKER BIDDLE & REATH
ONE LOGAN SQUARE
18TH AND CHERRY STREETS
PHILADELPHIA, PA 19103-6996

EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,397

Applicant(s)

LACZIK ET AL.

Examiner

Geoffrey S Evans

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-8, 9/1, 9/2, 9/4-9/8, 10/9/1, 10/9/2, 10/9/4-10/9/8, 11-16 is/are rejected.
- 7) ☒ Claim(s) 3, 9/3, 10/9/3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20020318.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The abstract of the disclosure is objected to because the word "means" is legal phraseology. Correction is required. See MPEP § 608.01(b).
2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 3 on line 1 the phrase "either of" is not understood in this context.
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2,4,6,7,8,9/1,9/2,9/4,9/6,9/7,9/8,11,14,15,16 are rejected under 35 U.S.C. 102(b) as being anticipated by Sasagawa in EP 679,469 A1.
Sasagawa discloses a laser conditioning apparatus (element 5) for use in material processing (page 1, lines 5-7) of a workpiece (8), the conditioning apparatus comprising an adapter housing (part of 5, generating unit) containing a phase filter (other part of 5), the adapter housing having connection means for mounting element 5 between a coherent light source (element 1) and two focusing units (elements 7a, 7b in figure 16). The phase filter has a plurality of regions with each region being assigned a predetermined phase shift from a plurality of possible phase shifts, the phase shifts of the plurality of regions being

Art Unit: 1725

chosen in dependence on the desired intensity distribution of the light incident on the workpiece which extends in at least a spatial dimension parallel to the optical axis beyond the focused spot produced by the laser apparatus in the absence of the filter (e.g. see page 14, line 4 to page 5, line 57). Regarding claim 2, see page 20, lines 13-16. Regarding claims 6 and 14, Sasagawa discloses having the regions of the filter be 0 or 180 degrees, i.e. 0 or π radians (see page 6, lines 27-30). Regarding claims 9 and 11, Sasagawa discloses a method of manufacturing a phase filter (element 5) for use in laser material processing apparatus (Figures 5-6 and 16 at least, the method comprising the steps of determining a desired intensity distribution of light incident on a workpiece which extends in at least a spatial dimension parallel to the optical axis beyond the focused spot produced by the laser material processing apparatus in the absence of the filter (element 5, see page 16, lines 1-19); assigning initial respective phase shifts to a plurality of regions of the filter (5; see page 16, lines 27-30); determining an error factor with respect to the similarity of the intensity distribution generated using the assigned phase shifts to the desired intensity distribution; iteratively optimizing the phase shifts assigned to each region so as to determine final phase shifts for each region so as to determine final phase shifts for each region of the filter (page 16, lines 19-25); and generating a phase filter with a plurality of regions, each region having the final phase shift determined by the iterative optimization step (page 16, lines 25-26).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1725

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
7. Claims 5,9/5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa in EP 679,469 A1 in view of Gluckstead in U.S. Patent No. 6,011,874. Gluckstead teaches using a programmable spatial light modulator (e.g. see claim 26) as a phase filter in material processing (see column 18, lines 8-10). It would have been obvious to adapt Sasagawa in view of Gluckstead to provide this to quickly change the shape of the wavefront reaching the workpiece to be processed.
8. Claims 10/9/1, 10/9/2, 10/9/4, 10/9/6, 10/9/7, 10/9/8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa in EP 679,469 A1 in view of Crossland et al. in U.S. Patent Application Publication 2001/0050787. Crossland et al. teaches computing a hologram using optimization by a direct

Art Unit: 1725

binary search to create a complex hologram (e.g. see paragraph 95). It would have been obvious to adapt Sasagawa in view of Crossland et al. to provide this to create a complex hologram be able to direct the laser beam wavefront as desired.

9. Claim 10/9/5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa in EP 679,469 A1 in view of Gluckstead in U.S. Patent No. 6,011,874 as applied to claim 9/5 above, and further in view of Crossland et al. in U.S. Patent Application Publication 2001/0050787. Crossland et al. teaches computing a hologram using optimization by a direct binary search to create a complex hologram (e.g. see paragraph 95). It would have been obvious to adapt Sasagawa in view of Gluckstead and Crossland et al. to provide this to create a complex hologram to be able to direct the laser beam wavefront as desired.

10. Claims 3, 9/3, and 10/9/3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ori discloses designing a spatial phase modulation element. Catanzaro et al. discloses generating a computer generated holographic plate for providing an array to laser machine vias in a substrate. Seldowitz et al. in the article 'Synthesis of digital holograms by direct binary search' discloses an efficient method for determining a hologram and on page 2794 discloses using an error factor with respect to the intensity distribution

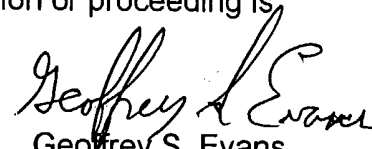
Art Unit: 1725

generated and the desired intensity distribution and iterative optimizing the phase shifts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571)-272-1171. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700